



UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
-----------------	-------------	----------------------	---------------------

09/234,233 01/20/99 LI

W MI22-1035

021567 MMC2/0522  
WELLS ST JOHN ROBERTS GREGORY AND MATKIN  
SUITE 1300  
601 W FIRST AVENUE  
SPOKANE WA 99201-3828

EXAMINER

VU, D

ART UNIT

PAPER NUMBER

2818

DATE MAILED:

05/22/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

**Office Action Summary**

Application No.

09/234,233

Applicant(s)

LI ET AL.

Examiner

DAVID VU

Art Unit

2818

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

**Status**

- 1) ☒ Responsive to communication(s) filed on 09 April 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) 33 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 10-32 is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claims \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. § 119**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- a) ☐ All b) ☐ Some \* c) ☐ None of the CERTIFIED copies of the priority documents have been:
1. ☐ received.
2. ☐ received in Application No. (Series Code / Serial Number) \_\_\_\_\_.
3. ☐ received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. & 119(e).

**Attachment(s)**

- 15) ☒ Notice of References Cited (PTO-892)
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 18) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over O.Joubert, T.W. Weidman, A.M.Joshi, R.L. Kostelak (Micro Electronic Engineering 30 ,1996, Pages 275-278) in view of Akram (US 6,140,151).

O.Joubert, T.W. Weidman, A.M.Joshi, R.L. Kostelak (Micro Electronic Engineering 30 ,1996, Pages 275-278) disclose a semiconductor processing method, comprising:

Plasma polymerised methylsilane (PPMS) resist film were deposited over a semiconductive wafer substrate;

exposing some portions of the layer to energy while leaving other portions unexposed, the exposing altering physical properties of the exposed portions of material relative to the unexposed portions of material; (Fig. 1-2, Page 276)

after the exposing, subjecting the exposed and unexposed portions of the layer to common conditions, the common conditions being effective to remove the PPMS and comprising a rate of removal that is influenced by the altered physical properties of the layer, the

common conditions removing either the exposed or unexposed portions faster than the other of the exposed and unexposed portions; (See section 3.3, page.277-278 and Introduction, Page. 275).

O.Joubert, T.W. Weidman, A.M.Joshi, R.L. Kostelak (Micro Electronic Engineering 30 ,1996, Pages 275-278) disclose all claimed subject matter, but fail to teach cutting the wafer into separated die. Akram, in related text (See Abstract) disclose cutting a wafer into seperated die while leaving one of an exposed or unexposed portion of the layer over the substrate. However, one of ordinary skill in the art would have found it obvious to dice the wafer in order to form the individual packing after step of forming the multidevice/transistor on the same wafer.

Regarding claims 2-5, O.Joubert, T.W. Weidman, A.M.Joshi, R.L. Kostelak (Micro Electronic Engineering 30 ,1996, Pages 275-278) disclose the material is PPMS ( chemical structure of PPMS on page 276) wherein the material comprises carbon, silicon and oxygen,silicon bound to a hydrocarbon group and bound to oxygen.

Regarding claims 7and 9, O.Joubert, T.W. Weidman, A.M.Joshi, R.L. Kostelak (Micro Electronic Engineering 30 ,1996, Pages 275-278) disclose the energy is in the form of ultraviolet light and the energy is in the form of a plasma (See Section 2. Experimental, page 275)

Art Unit: 2818

2. Claims 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over O.Joubert, T.W. Weidman, A.M.Joshi, R.L. Kostelak (Micro Electronic Engineering 30 ,1996, Pages 275-278) in view of Akram (US 6,140,151) and further in view of Hayase et al.(US 5,962,581).

O.Joubert, T.W. Weidman, A.M.Joshi, R.L. Kostelak (Micro Electronic Engineering 30 ,1996, Pages 275-278) disclose all claimed subject matter, but fail to teach the material comprises Si(OH)<sub>4</sub>.

Hayase et al.,disclose the material comprises Si(OH)<sub>4</sub> (Col.7. Lines. 35-47)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a material such as silanol for a resist film, since it has been held within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended used as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

3. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over O.Joubert, T.W. Weidman, A.M.Joshi, R.L. Kostelak (Micro Electronic Engineering 30 ,1996, Pages 275-278) in view of Akram (US 6,140,151) and further in view of Hayase et al.(US 5,962,581)

O.Joubert, T.W. Weidman, A.M.Joshi, R.L. Kostelak (Micro Electronic Engineering 30 ,1996, Pages 275-278) disclose all claimed subject matter, but fail to teach the energy is in the form of an electron beam.

Hayase et al., (Col. 7, Lines. 35-47) disclose the energy is in the form of light, electron beam or X-ray. It would have been obvious to one having ordinary skill in the art at the time the

Art Unit: 2818

invention was made to use the energy in form of an electron beam, since it has been held within the general skill of a worker in the art to select a known source of radiation on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

### **Allowable Subject Matter**


4. Claims 10-32 would be allowed, the following is a statement of reason for the indication of allowable subject matter:

Claims 10-32 are considered allowable since the prior made of record and considered pertinent to the applicant's disclosure does not teach or suggest the claimed limitations. Hayase et al. (U.S. Patent No. 5962581) and Joubert et al (EP 0942330A1), taken individually or in combination, do not teach the claimed invention deposit a layer of material comprising silicon and oxygen, as initially deposited, over a substrate.

### Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Vu whose telephone number is (703) 305-0391. The examiner can normally be reached on Monday-Friday from 8:00am to 5:00pm.

If attempt to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms., can be reached on (703) 308-4910.

  
David Nelms  
Supervisory Patent Examiner  
Technology Center 2800

David Vu DV  
Art Unit 2818